

IN THE CLAIMS:

1 – 11. (canceled)

12. (currently amended) A method of determining the living character of a finger of a person carrying a fingerprint, comprising the step of:

- (a) making a first measurement of impedance of the finger between two first electrodes with a first predetermined surface area and determining one curve among several curves, each of said several curves satisfying a law of variation of impedance Z measured by the electrodes as a function of the surface area (S) of the electrodes covered by the fingerprint of a finger D at a time t , that is, $Z=f_D(S)$, said one curve being determined by selecting the curve containing the point with coordinates (first predetermined surface area, measured impedance) at various points on the element by means of electrodes; and
- (b) making a second measurement of impedance between two second electrodes with a second predetermined surface area different from said first predetermined surface area, and determining whether the impedance measurements (Z) satisfy a law of variation of the impedance measured by the electrodes as a function of the surface area (S) of the electrodes covered by the element such as $Z=f_D(S)$, the law of variation being related to the element carrying the fingerprint; and
- (c) checking that the point defined by the second predetermined surface area and the second impedance measurement values belongs to an area of tolerance situated around said one curve.

13 -14. (canceled)

15. (currently amended) A method according to claim ~~[[14]]~~ 12, wherein the second impedance measurement is made randomly between two electrodes of the same size and two electrodes of different sizes.

16. (currently amended) A method according to claim ~~[[14]]~~ 12, wherein the second impedance measurement is made alternately between two electrodes of the same size and between two electrodes of different sizes.

17. (currently amended) A fingerprint sensor adapted to determine the living character of a finger carried by a person on an element carrying a fingerprint, the sensor comprising:

- (a) at least four electrodes, wherein at least two of the said at least four electrodes have smaller surfaces than the other two of the said four electrodes with larger surfaces at least two of which have smaller surfaces than two other with larger surfaces;
- (b) means for measuring ~~[[the]]~~ impedances at least between on the one hand, two electrodes with smaller surfaces and on the other hand, two electrodes with larger surfaces, ~~[[and]]~~
- (c) means for determining one curve among several curves, each of said several curves satisfies a law of variation of the impedance Z measured by said two electrodes with smaller surfaces or by said electrodes with larger surfaces, as a function of the surface area (S) of the electrodes covered by the fingerprint of a finger D at a time t, that is, $Z=f_D(S)$, said one curve being determined by selecting the curve containing the point with the coordinates (first predetermined surface area, measured impedance) means of checking that the impedances measured by the measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for measurement, the law of variation being related to the element carrying the fingerprint. ; and
- (d) means for checking that the point defined by the other surface area and the other impedance measurement values belongs to an area of tolerance situated around said one curve.

18. (original) A fingerprint sensor according to claim 17, wherein the two electrodes with smaller surfaces are less distant from each other than the two electrodes with larger surfaces.

19. (previously presented) A fingerprint sensor adapted to determine the living character of an element carrying a fingerprint, the sensor comprising:

- (a) a first set of four single-piece electrodes with identical large surfaces and a second set of two electrodes in the form of intersecting combs with identical surfaces less than the identical large surfaces;
- (b) means for measuring the impedances between electrodes selected from the group consisting of: the two electrodes with smaller surfaces; two of the electrodes with larger surfaces; and one of the electrodes with smaller surfaces and one of the electrodes with larger surfaces; and
- (c) means of checking that the impedances measured by the measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for the measurement.

20. (previously presented) A fingerprint sensor adapted to determine the living character of an element carrying a fingerprint, the sensor comprising:

- (a) a first set of four single-piece electrodes with identical large surfaces and a second set of four single-piece electrodes with identical surfaces smaller than the identical large surfaces;
- (b) means for measuring the impedances between electrodes selected from the group consisting of: two of the electrodes with smaller surfaces; two of the electrodes with larger surfaces; and one of the electrodes with smaller surfaces and one of the electrodes with larger surfaces; and
- (c) means of checking that the impedances measured by the measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for the measurement, the law of variation being related to the element carrying the fingerprint.

21. (previously presented) A fingerprint sensor adapted to determine the living character of an element carrying a fingerprint, the sensor comprising:

- (a) a first set of four single-piece electrodes with identical large surfaces and a second set of two single-piece electrodes with identical surfaces smaller than the identical large surfaces and a third set of two electrodes in the form of intersecting combs with identical surfaces smaller than the identical large surfaces;
- (b) means for measuring the impedances between electrodes selected from the group consisting of: one electrode from the second set and one electrode from the third set; two electrodes of the first set; one electrode from the first set and one electrode from the third set; one electrode from the first set and one electrode from the second set; two electrodes of the second set, and two electrodes of the third set; and
- (c) means of checking that the impedances measured by the measuring means follow a predetermined law of variation of the impedance as a function of the surface area of the electrodes used for the measurement, the law of variation being related to the element carrying the fingerprint.

22. (original) A fingerprint sensor according to claim 17, further comprising an optical system producing an image of the fingerprint and determining the surface area of the electrodes not entirely covered by the fingerprint.